



UNITED STATES
Patent and Trademark Office

Address: COMMISSIONER
Washington

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR
---------------	-------------	----------------------

07/985,199 12/03/92 OHNISHI

H 381/41092

EXAMINER

PARK, C

ART UNIT

PAPER NUMBER

17

B3M1/0516
EVENSON, MCKEOWN, EDWARDS & LENAHA
1200 G STREET, N.W., SUITE 700
WASHINGTON, DC 20005

2304

DATE MAILED:

05/16/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☐ This application has been examined ☒ Responsive to communication filed on 2/14/95 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-3, 5-8, 10-11, 13-15, AND 17-24 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
2. ☒ Claims 4, 9, 12, AND 16 have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1-3, 5-8, 10-11, 13-15, AND 17-24 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with Informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

ART UNIT 2304

1. This office action is in response to Applicant's communication filed on February 14, 1995. Claims 1-3, 5-8, 10-11, 13-15, 17-24 are currently pending. Claims 4, 9, 12, and 16 have been canceled.

2. Claims 2-3, 5-8, 10-11, 13-15, and 17-24 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2.1 Claim 15 depends on claim 12 which has been canceled. It is assumed that claim 15 depends on claim 23 hereinafter.

2.2 As per claims 18 and 23, although an "automatic transmission control" is claimed, no control of the automatic transmission is recited. Thus, the claim is incomplete.

2.3 Claims 2-3, 5-8, 10-11, 13-15, 17, 19-22, and 24 are rejected or further rejected for incorporating deficiencies cited above from their respective parent claims.

2.4 All the rejections hereinafter are based on the examiner's best understanding and interpretation of the claims in light of the deficiencies cited above.

3. Claims 1 and 18 are rejected under 35 U.S.C. § 102(b) as being anticipated by Morita (5,035,160).

3.1 As per claims 1 and 18, Morita teaches an automatic transmission control system for a vehicle. Morita teaches load computation means for preestimating the weight of the vehicle (column 4, lines 24+), determining vehicle acceleration (Figure 3, S7), output torque estimation means for estimating the output torque which is equivalent to the engine torque (input torque to

ART UNIT 2304

the transmission) multiplied by the present transmission ratio (column 4, lines 1+), running load estimation means for estimating a running load (resistance) from the vehicle weight and the output torque (column 4, lines 14+), memory means for storing shift schedules (column 3, lines 36+), a shift schedule variable-control unit for determining a shift schedule based on the
5 estimated running load and the stored shift schedules (column 4, lines 28-39), and changing a gear position of the automatic transmission based on the selected pattern (column 6, lines 12+) as claimed.

4. Claims 8, 10-11, 15, 17 and 23-24 are rejected under 35 U.S.C. § 103 as being unpatentable over Morita ('160) as applied to claims 1 and 18 above, and further in view of
10 Asayama et al. (4,836,057).

4.1 As per claims 23-24, Morita does not teach weight estimation means for estimating the vehicle weight in response to a throttle valve signal, a vehicle speed signal, and the acceleration signal as claimed. However, Asayama et al. teach calculating the vehicle weight based on the driving torque and acceleration in addition to several other parameters (column 23, lines 4-68;
15 column 25, lines 54+). Asayama et al. also teach that the driving torque is calculated from the throttling amount (column 23, lines 50+) and the acceleration is derived from differentiating speed (column 24, lines 27+). Thus, Asayama et al. teach calculating the vehicle weight based on the throttling amount, the vehicle speed, and the acceleration as claimed. A person of ordinary skill in the art of transmission control would have been motivated at the time of the
20 present invention to incorporate the above teaching of calculating the vehicle weight into the teachings of Morita, and replace the precalculated and stored weight taught by Morita with the

ART UNIT 2304

calculated weight taught by Asayama et al. in order to improve accuracy of the vehicle weight thereby improving the accuracy of the calculated running load or resistance because the stored weight taught by Morita does not change with respect to such weight affecting conditions as the number of passengers and the amount of cargo which would affect the calculated weight taught
5 by Asayama et al.

Therefore, in light of the above motivation of improved accuracy, it would have been obvious for a person of ordinary skill in the art of transmission control at the time of the present invention to combine the relevant teachings of Morita and Asayama et al.

4.2 As per claims 8 and 10-11, Morita further teaches continuously varying the shift pattern
10 or schedule in response to the running resistance (column 4, lines 28-39), vehicle weight (column 4, lines 17-21), inclination angle of the automobile (column 3, lines 36-47), and the opening degree of the throttle valve which is equivalent to the acceleration request by the driver (column 4, lines 1-6).

4.3 As per claims 15 and 17, Morita teaches an acceleration input means (column 4, lines
15 13+; Figure 3, S5 and S7) as claimed. Morita teaches that the running load estimating means estimates the running load further based on the acceleration (column 4, lines 14+). Morita teaches the gear position determination means for determining a shift schedule (column 4, lines 28-39) and determining a gear position (column 4, lines 40+) as claimed.

5. Claims 2-3, 5, 14 and 19-20 are rejected under 35 U.S.C. § 103 as being unpatentable
20 over Morita ('160) in view of Asayama et al. as applied to claims 8, 10-11, 15, 17 and 23-24 above, and further in view of Tanaka (5,309,790).

ART UNIT 2304

5.1 As per claims 2-3 and 19-20, Morita teaches estimating the output torque based on the characteristics of the engine (column 4, lines 2+). Neither Morita nor Asayama et al. specifically teach estimating the output torque based on the characteristics of the torque converter as claimed. However, estimating the output torque on the basis of the torque converter characteristics has been well known and commonly used in the art of transmission control. Further, Tanaka teaches calculating the input torque to the transmission based on a characteristic value of the torque converter and the engine characteristics (column 1, lines 50+; column 5, lines 32-58). A person of ordinary skill in the art of transmission control would have been motivated at the time of the present invention to incorporate the above well known method of estimating the torque taught by Tanaka into the combined teachings of Morita and Asayama and replace the engine output torque taught by Morita with the estimated torque taught by Tanaka in order to increase accuracy in estimating the torque (Tanaka, column 2, lines 10+) because engine generated torque is varied according to various conditions that it is difficult to estimate the engine generated torque based on engine characteristics (Tanaka, column 1, lines 38-42).

Therefore, in light of the above motivation for increased accuracy in estimating the torque, it would have been obvious for a person of ordinary skill in the art of transmission control at the time of the present invention to combine the relevant teachings of Morita, Asayama et al., and Tanaka.

5.2 As per claims 5 and 14, Tanaka teaches estimating the torque based on characteristics of both the engine and the torque converter based on the speed ratio (Figures 4(a) and 4(b); column 5, lines 48+).

ART UNIT 2304

6. Claims 13 and 21-22 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112 and to include all of the limitations of the base claim and any intervening claims in light of Applicant's remarks on page 15, second full paragraph and third paragraph, continuing on page 16.

5 7. Claims 6-7 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112 and to include all of the limitations of the base claim and any intervening claims because utilizing a neural network as claimed to estimate weight of the vehicle in an automatic transmission control system recited in the parent claim, claim 23, is deemed to have not been taught by the cited prior art.

10 8. REMARKS

On page 12, Applicant summarizes the present invention.

On page 13, first paragraph, Applicant summarizes claim 23.

On page 13, second paragraph, Applicant summarizes Morita.

As per Applicant's argument on pages 13-14, third paragraph, continuing on page 14,
 15 Morita does not teach estimating the vehicle weight in real time. Nonetheless, it is inherent from the teaching of Morita that the vehicle weight is preestimated and stored for later use. Estimation or calculation of the vehicle weight in real time is not recited in claims 1 and 18. Further, even if it were, it would have been obvious in view of teachings by Asayama et al.

ART UNIT 2304

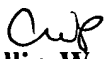
9. Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL.** See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

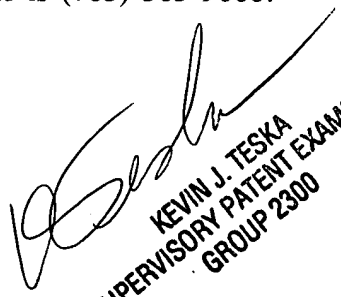
5 A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION
IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE
EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE
OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL
10 AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN
THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY
ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a)
WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION.
IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN
SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

10. Any inquiry concerning this communication or earlier communications from the examiner
15 should be directed to Collin W. Park whose telephone number is (703) 305-9754. The examiner
can normally be reached on Monday - Friday from 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Kevin Teska, can be reached on (703) 305-9704. The fax phone number for this
Group is (703) 305-9564,9565.

20 Any inquiry of a general nature or relating to the status of this application should be
directed to the Group receptionist whose telephone number is (703) 305-9600.


Collin W. Park
Examiner
Art Unit 2304
May 15, 1995


KEVIN J. TESKA
SUPERVISORY PATENT EXAMINER
GROUP 2300